REMARKS

New claim 45 has been added. Claims 21, 22, 26, 38 and 44 have been amended. No new matter has been added. Claims 21 to 44 are now pending.

The Specification has been amended to include an additional paragraph based on the originally filed claim 1. No new matter has been added.

Applicants respectfully request reconsideration of the above-identified application in view of Applicants' amendments to the claims and Specification and remarks.

Applicants thank the Examiner for approving Applicants' submission of amended Drawings.

With respect to paragraph three (3) of the Office Action, claims 21 to 44 were rejected under 35 U.S.C. §112, first paragraph, as being nonenabling. Specifically, the features of claims 21 and 44 involving "determining user needs, determining user requirements via tree structure, or actually generating a final network design" were contended to be nonenabled. Applicants respectfully submit that all features of claims 21 and 44, and thus dependent claims 22 to 43, are enabled by the disclosure.

The actual features from claim 21 focused on in the Office Action are:

> iv) determining at least one load of the edges of the tree structure as a function of at least one requirement for each of the users to provide the network plan; and
>
> b) generating the network according to the network plan.

Applicants respectfully submit that the disclosure does enable claims 21 to 44. Specifically, the feature in amended claim 21 of "determining the needs and requirements for each of the users" is moot given the claim amendments. The feature in amended claim 21 of "determining at least one load of the edges of the tree structure as a function of at least one requirement for each of the users to provide the network plan" can be found throughout the disclosure, including the Abstract and the Specification at page 11, lines 16-20, page 12, lines 1-24, page 13, lines 17-23, page 15, line 19 - page 16, line 28, page 17, lines 2-12, and page 17, line 31 - page 18, line 3. A user's requirements can be network services type and/or materials necessary for laying down the cable to the user from the respective network. See page 7, line 9 et seq., and page 11, line 16 et seq. The feature in amended claim 21 of "generating the network according to the network plan" can be found throughout the disclosure, including the Abstract and the Specification at page 6, line 29 - page 7, and line 4,

page 11, lines 22-28, etc. In addition, the Specification at page 6 describes that "by converting the method to a computer program that can run on a data processing system, the generated network can be easily optimized manually later on" and "[o]ne advantage is that all process steps can be easily completed quickly and conveniently using a computer program, making it possible to generate any number of network plans for a territory in a relatively short amount of time." The remaining features of claim 21 were agreed enabled by the Office Action. Accordingly, all features of claim 21 are enabled by the disclosure and that which is available to one of ordinary skill in the art. Claim 21 is thus in a condition for allowance and withdrawal of the rejection of claim 21 under 35 U.S.C. §112, first paragraph, is respectfully requested.

Since independent claim 44 contains analogous features to claim 21; claim 44 is enabled for essentially the same reasons as claim 21 discussed above.

Since the remaining claims 22 to 43 are dependent on independent claim 21, those claims are also enabled by the disclosure for the same reasons as claim 21.

With respect to paragraph four (4) of the Office Action, claims 21 to 44 were rejected under 35 U.S.C. §102(b) as being anticipated by "PLANET: A Tool For Telecommunications Network Planning," by L. Jereb et al., IEEE 073308716/94, IEEE Journal on Selected Areas in Communications, 1994 (the "Jereb reference").

The Jereb reference purportedly concerns an integrated software package "PLANET" which is said to aid transmission network planning and traffic simulation. (Jereb reference, Abstract, lines 1-3). The Jereb reference refers to consisting of give major elements: database, planbase, network modeling, transmission planning and network analysis functions. (Jereb reference, Section III). The Jereb reference refers to the database as including data that are used for the construction of several network models and is apparently formed by the following types of data: equipment type and data, cost models of transmission lines, node (demand termination and transmission points data), topology, grouping levels, grouping rules, and routing rules. (*Id.*) The Jereb reference refers to the planbase as defining a plan hierarchy of plangroups, plans and plan versions: the plangroups refer to the types of plans, the inputs of the plangroup are chosen only from a given part of the database; the plans are based on the same node lists in order to avoid the confusion of the input date of different origin; and the plan versions include the inputs and results of different studies of the same planning problem with similar input data. (*Id.*) The Jereb reference refers to the element of

network modeling, where during traffic data preparation, the combined circuit demand – the circuit demand of different services being taken into account as fixed values in different units – is determined and the further topological and transmission planning steps are based on the input data. (*Id.*) The Jereb reference refers to transmission planning as including the topological planning, the routing, the grouping, and the equipment assignment steps where the input of these steps are the circuit demands generated by the traffic planning phase, the geographical constraints (rivers, mountains, etc.) given by the possible edges of the network, the cost models of the nodes and the (optical and microwave) transmission lines, the routing rules for every demand class (telephone, data, etc.), and the grouping rules; the results provided by this phase are the network topology, the routing of circuits and the assignment of equipment to the demands. (*Id.*) The Jereb reference refers to network analysis as including the traffic plan evaluation (simulation and analytical methods) and of the reliability qualification; the simulation part of PLANET is based on OMNET (objective modular network testbed) for which apparently performance parameters can be obtained for the networks with hierarchical traffic routing and the traffic properties of exchanges can be analyzed. (*Id.*) The Jereb reference further refers to modeling the telecommunication network by a "simple undirected graph where only one edge exists between every node pair," the nodes of the graph corresponding to the transmission demand endpoints (more than one is allowed on one site), the connection points (the demand endpoints are connected to the network via the connection points), and the topological points (the topological points represent the cross-points of links where no demand termination and no transmission equipment exist. (Jereb reference, Section IV.) Further, the Jereb reference refers to the demand endpoints as representing the terminals of the different kinds of services. (*Id.*)

The Jereb reference states that its database and planbase help a user to build up different visions of the network while the planning and the analysis parts assist the topological optimization, the simplified grouping method makes possible the determination of the approximate cost of a target network, where the results can be mainly used for the comparison of different alternatives and not for the determination of the real amount of the necessary investment. (Jereb reference, Section VI.A.) The Jereb reference also states that the grouping process is based on the grouping module of PLANET, but takes into account the existing multiplex structure and tries to fill the existing free bundles before opening a new one. (Jereb reference, Section VI.B).

Amended claim 21 is directed to a method for generating a network which connects all users residing within a particular territory to a main distribution node, including the features of:

i) generating a graph which represents the network and which is composed of edges and nodes, the edges representing all transmission paths in the network, wherein a length and a direction of each of the edges is determined as a function of a real topography of street segments and definable cable paths of a particular territory associated with the network, the nodes representing intersections between at least one of the street segments and the definable cable paths,

ii) assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge,

iii) generating a tree structure by removing unnecessary edges of the edges from the graph so that only one particular connection exists between the main distribution node and each of the users, wherein the particular connection is composed of the at least one service edge, the edges and the nodes of the tree structure, and

iv) determining at least one load of the edges of the tree structure as a function of at least one requirement for each of the users to provide the network plan

To reject a claim under 35 U.S.C. § 102(b), the Office must demonstrate that each and every claim limitation is identically disclosed in a single prior art reference. (See *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991)). It is respectfully submitted that the Jereb reference simply does not and cannot identically disclose (or even suggest) at least the features of amended claim 21 of generating a graph which is composed of edges and nodes, the edges representing all transmission paths in the network, wherein a length and a direction of each of the edges is determined as a function of a real topography of street segments and definable cable paths of a particular territory associated with the network, the nodes representing intersections between at least one of the street segments and the definable cable paths, and assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge. In contrast, the Jereb reference refers to a software package having five major elements: database, planbase, network modeling, transmission planning and network analysis functions. The Jereb reference, as discussed above, refers to modeling the

telecommunication network by a "simple undirected graph where only one edge exists between every node pair," the nodes of the graph corresponding to the transmission demand endpoints (more than one is allowed on one site), the connection points (the demand endpoints are connected to the network via the connection points), and the topological points (the topological points represent the cross-points of links where no demand termination and no transmission equipment exist. (Jereb reference, Section IV.) Further, the Jereb reference refers to the demand endpoints as representing the terminals of the different kinds of services. (*Id.*) The Jereb reference does not appear to describe or even suggest, among other things, taking into account the real topography, that is of the street segments and cable paths when creating a graph representing the network nor does it take into account assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge. In addition, the Jereb reference does not identically disclose (as it must for anticipation) the features of assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge, generating a tree structure by removing unnecessary edges of the edges from the graph so that only one particular connection exists between the main distribution node and each of the users, wherein the particular connection is composed of the at least one service edge, the edges and the nodes of the tree structure, and determining at least one load of the edges of the tree structure as a function of at least one requirement for each of the users to provide the network plan, as in amended claim 21.

It is therefore respectfully submitted that the reference relied upon cannot and does not identically disclose amended claim 21 since it does not identically disclose its features discussed above, and that claim 21 is therefore allowable. Withdrawal of the rejection of amended claim 21 under 35 U.S.C. §102(b) is respectfully requested.

Since claim 44 contains features analogous to claim 21, claim 44 is allowable for essentially the same reasons as for claim 21.

Since claims 22 to 43 depend from claim 21, claims 22 to 43 are allowable for essentially the same reasons as for claim 21.

With respect to paragraph five (5), claims 21 and 44 were rejected as being unpatentable over U.S. Patent No. 5,276,789 to Besaw et al. (the "Besaw reference") in view of "Heuristic Layout Algorithms For Network Management Presentation Services," by G. Kar et al., IEEE Network, 0890-8044/88/0011-0029, November 1988 (the "Kar reference").

The Besaw reference purportedly concerns a system for automatically laying out and graphically displaying the topology of a computer network system which retrieves a list of the nodes within the network and their interconnections from a database which can be manually built by a network administrator or automatically constructed by other software. (Besaw reference, Abstract, lines 1-6). The Besaw reference refers to the system as automatically updating the view of the nodes as new nodes become available in the database -- allowing the system to dynamically update the graph when the list of nodes is being supplied by other software. (Besaw reference, Abstract, lines 11-18). The Besaw reference further refers to the system as also allowing a user to dynamically alter the graph by using a graphical input device to move any of the objects displayed on the graph. (Besaw reference, Abstract, lines 18-20).

The Kar reference purportedly concerns providing an operator with a rich, user-friendly set of presentation services so that the general activity of managing a complex network can be made more tractable. (Kar reference, Introduction, lines 8-11). The Kar reference refers to its approach as utilizing the principle of divide and conquer such that instead of processing the entire network all at once, the following two steps are used: 1) a preprocessing step called heuristic clustering is used to partition a large network into logical groups, the initial large mesh of nodes now becomes a much smaller mesh of groups; and 2) a multiphase placement algorithm is used to produce coordinates for the nodes – first, the groups are located in a world coordinate system, then link crossing optimizations are performed, next the nodes within a group are placed, and finally optimizations are performed to improve the aesthetic quality of the picture. (Kar reference, page 29, col. 2). The Kar reference further refers to its goal of node placement algorithm as twofold: 1) compute the (x,y) coordinates for each node of the network in a Cartesian world coordinate system (a graphics presentation service, such as Communications Network Management Graphics (CNMgraf), could then use this position information to draw the nodes and links of a computer network using suitable icons; and 2) using heuristics to optimize the initial layout, so that the picture produced is aesthetically pleasing.

Amended claim 21 is directed to a method for generating a network which connects all users residing within a particular territory to a main distribution node, including the features of:

i) generating a graph which represents the network and which is composed of edges and nodes, the edges representing all transmission paths in the network, wherein a length and a direction of each of the edges is determined as a function of a real topography of street segments and definable cable paths of a particular territory associated with the network, the nodes representing intersections between at least one of the street segments and the definable cable paths,

ii) assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge,

iii) generating a tree structure by removing unnecessary edges of the edges from the graph so that only one particular connection exists between the main distribution node and each of the users, wherein the particular connection is composed of the at least one service edge, the edges and the nodes of the tree structure, and

iv) determining at least one load of the edges of the tree structure as a function of at least one requirement for each of the users to provide the network plan

The Besaw reference does not teach or suggest a method for generating a network including generating a network plan using the steps of generating a graph which represents the network and which is composed of edges and nodes, the edges representing all transmission paths in the network, wherein a length and a direction of each of the edges is determined as a function of a real topography of street segments and definable cable paths of a particular territory associated with the network, the nodes representing intersections between at least one of the street segments and the definable cable paths, and assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge, as in claim 21. In contrast, the Besaw reference appears to concern automatic updating a view of the nodes as new nodes become available in the database. The Besaw reference appears directed to providing a solution for its stated "need in the art then for a method of quickly displaying the nodes on a network," "for automatically redisplaying nodes periodically, as nodes activate and deactivate," graphically displaying different levels of a network to suit needs of the administrator, and redisplay the graph each time a node is added or deleted. (Besaw reference, col. 1, line 44 to col. 2, line 13).

The Kar reference does not cure the deficiencies of the Besaw reference. The Kar reference does not teach or suggest a method for generating a network including generating a

network plan using the steps of generating a graph which represents the network and which is composed of edges and nodes, the edges representing all transmission paths in the network, wherein a length and a direction of each of the edges is determined as a function of a real topography of street segments and definable cable paths of a particular territory associated with the network, the nodes representing intersections between at least one of the street segments and the definable cable paths, and assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge, as in claim 21. In contrast, the Kar reference appears to concern providing a user with a rich, user-friendly set of presentation services, which involves, among other things, a node placement algorithm which purportedly provides that all of the main sites of the network are first placed in a predetermined order on a large circle in the central part of the presentation space – the subsites are similarly placed on an outer circle; this placement phase depends heavily on the output of a preprocessor, or clustering, phase. (Kar reference, Introduction and page 31, col. 2).

It is therefore respectfully submitted that the Besaw and Kar references (alone or in combination) relied upon cannot and does not render obvious claim 21 since they do not teach or even suggest a method for generating a network including generating a network plan using the steps of generating a graph which represents the network and which is composed of edges and nodes, the edges representing all transmission paths in the network, wherein a length and a direction of each of the edges is determined as a function of a real topography of street segments and definable cable paths of a particular territory associated with the network, the nodes representing intersections between at least one of the street segments and the definable cable paths, and assigning the users to the graph, each of the users being connected to one of a closest edge of the edges and a closest node of the nodes via at least one service edge, as in claim 21. Accordingly, Applicants respectfully submit that claim 21 is allowable and withdrawal of the rejection of claim 21 under 35 U.S.C. §103(a) is respectfully requested.

Since claim 44 contains features analogous to claim 21, claim 44 is allowable for essentially the same reasons as for claim 21.

Moreover, to reject a claim as obvious under 35 U.S.C. § 103, the prior art must disclose or suggest each claim element and it must also provide a motivation or suggestion for combining the elements in the manner contemplated by the claim. (See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct.

296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990)). Thus, the "problem confronted by the inventor must be considered in determining whether it would have been obvious to combine the references in order to solve the problem." (See Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 679 (Fed. Cir. 1998)). It is respectfully submitted that, as discussed above, the references relied on, whether taken alone or combined, do not in any way suggest modifying or combining the references so as to provide the presently claimed subject matter.

Accordingly, it is respectfully requested that the obviousness rejections of claims 21 and 44 should be withdrawn for the foregoing reasons.

New claim 45 is dependent from claim 21 and thus is allowable for at least the same reasons as claim 21.

CONCLUSION

In view of all the above, it is believed that objection to the Drawings and the rejections of claims 21 to 44 have been obviated, and that currently pending claims 21 to 45 are allowable. It is therefore respectfully requested that the rejections be reconsidered and withdrawn, and that the present application issue as early as possible.

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